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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
LAXTON, GARY L

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 12/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/469,619	AIHARA ET AL.
	Examiner	Art Unit
	Gary L. Laxton	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-14 and 16-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-14 and 16-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 4-14 and 16-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 20 is objected to because of the following informalities: Claim 20 recites the limitation "said DC power supply means" in line 18. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent,
> except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 4-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Faberman et al.

Claims 4 and 8:

Faberman et al disclose a power supply (figure 1); an AC/DC converter (D1A) which receives AC power (E1A) and converts it to none other than DC voltage (E2A); the AC/DC converter includes a control circuit to control an output voltage from the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage (col. 6 lines 30-40; e.g. AC in = 120volts and voltage at E2A = 330volts; thus, D1A must be a controlled boost rectifier circuit.); a DC/DC converter (T1A and D2A) which receives the DC power from the AC/DC converter and controls a level of an output voltage to be equal to a level of a voltage to be used by a load (E5A, E6A, E7A); a DC converter (33) which is connected to an input of the DC/DC converter; and a DC power storage means (31) which supplies electric power to the DC/DC converter through the DC converter (33) via (E4A); wherein the DC converter is bi-directional (figure 1; e.g. "bi-directional power supply") for charging and discharging the DC storage means (31); wherein the DC converter controls and output voltage to be boosted over a voltage of the DC power storage means (33) while supplying electric power to the DC/DC converter (T1A and D2A); wherein the DC converter (33) includes a first converter (S3B, S4B) having an AC terminal (figure 2; T1B:C) and a DC terminal (figure 2; C1B, C2B) connected to the input of the DC/DC converter (see figure 1); a transformer (figure 2; T1B:A, T1B:B, T1B:C) having a high voltage side (figure 2; T1B:C) and a low voltage side (figure 2; T1B:A, T1B:B); and a second converter (figure 2; S1B, S2B) for connecting to the battery (B1B) wherein the as shown in figure 2, the transformer isolates the battery from the rest of the power supply circuit.

Claims 5, 6, 7, 9 and 10:

See column 6 lines 40-50 and col. 7 lines 5-25.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination with Yeh.

Faberman et al disclose the claimed subject matter with regard to claims 4 and 8 as stated above except for a charger for charging the DC storage means connected to the AC input.

Yeh teaches a circuit (40) which consists of a battery charging circuit connected to the AC input (col. 4 lines 40-45 and see also figures 2 and 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a charger for charging the DC storage means from the AC input voltage in order to utilize the input voltage instead of an auxiliary or secondary source of power in order to simplify circuit design.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination with Nagai et al.

Faberman et al disclose the claimed subject matter with regard to claim 8 as stated above except for a power interruption detecting circuit for generating a power interruption detection signal for detecting when there is a power interruption.

Nagai et al teaches a power interrupt detector (36) for detecting a power interruption and signaling to the DC converter to switch over to the battery power.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a power interrupt detector for detecting a power interruption and signaling to the DC converter to switch over to the battery power in order to provide uninterrupted power to the circuit load.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination with Kegeyama.

Faberman et al disclose the claimed subject matter with regard to claim 4 as stated above except connecting plural converters (either AC or DC) in parallel.

Kegeyama teaches parallel connecting AC/DC converters and parallel connecting DC/DC converters.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to parallel connect either the AC/DC converters or the DC/DC converters or both in order to provide for redundancy in case of converter failure. (see also previously cited prior art reference Shimamori).

9. Claims 16-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination Brand et al.

Faberman et al disclose the claimed subject matter with regard to claim 4 as stated above except connecting additional converters between the AC/DC converter and other DC/DC converters as well as connecting plural converters (either AC or DC) in parallel.

Brand et al teach parallel connecting AC/DC converters and parallel connecting DC/DC converters and as well as connecting additional converters in series.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to connect additional DC/DC converters in series with the other converters in order to provide clean regulated voltage to the load and to parallel connect either the AC/DC converters or the DC/DC converters or both in order to provide for redundancy in case of converter failure. (see also previously cited prior art reference Shimamori).

10. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination with Levran et al or Brand et al.

Faberman et al disclose a power supply (figure 1); an AC/DC converter (D1A) which receives AC power (E1A) and converts it to none other than DC voltage (E2A); the AC/DC converter includes a control circuit to control an output voltage from the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage (col. 6 lines 30-40; e.g. AC in = 120volts and voltage at E2A = 330volts; thus, D1A must be a controlled boost rectifier circuit.); a DC/DC converter (T1A and D2A) which receives the DC power from the AC/DC converter and controls a level of an output voltage to be equal to a level of a voltage to be used by a load (E5A, E6A, E7A); a DC converter (33) which is connected to an input of the DC/DC converter; and a DC power storage means (31) which supplies electric power to the

DC/DC converter through the DC converter (33) via (E4A); wherein the DC converter is bi-directional (figure 1; e.g. "bi-directional power supply") for charging and discharging the DC storage means (31); wherein the DC converter controls and output voltage to be boosted over a voltage of the DC power storage means (33) while supplying electric power to the DC/DC converter (T1A and D2A); wherein the DC converter (33) includes a first converter (S3B, S4B) having an AC terminal (figure 2; T1B:C) and a DC terminal (figure 2; C1B, C2B) connected to the input of the DC/DC converter (see figure 1); a transformer (figure 2; T1B:A, T1B:B, T1B:C) having a high voltage side (figure 2; T1B:C) and a low voltage side (figure 2; T1B:A, T1B:B); and a second converter (figure 2; S1B, S2B) for connecting to the battery (B1B) wherein the as shown in figure 2, the transformer isolates the battery from the rest of the power supply circuit. However, Faberman et al does not disclose power factor correcting.

Levran et al, col. 3 lines 30-35 teach the AC/DC converter has unity power factor and /or Brand et al teach the power supply employs power factor correction (Abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ power factor correction techniques in order to maximize circuit efficiency, as is well known in the art and desired, that power factor correction provides.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al in combination with Kegeyama.

Kegeyama teaches parallel connecting AC/DC converters and parallel connecting DC/DC converters.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to parallel connect either the AC/DC converters or the DC/DC converters or both in order to provide for redundancy in case of converter failure. (see also previously cited prior art reference Shimamori).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,691,629 Belnap discloses series connecting DC/DC converters to first step up a voltage then step it down to provide the voltage to a load.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (703) 305-7039. The examiner can normally be reached on 5-4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703)308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

12/12/02

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

GLL
December 10, 2002